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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Serial No.: 09/423,356 | Confirmation No.: 6645

In re Application of: | On Appeal from:

Hideki KIRINO et al. | Group Art Unit: 2686

Filed: January 21, 2000 | Examiner: Naghmeh Mehrpour

For: APPARATUS AND METHOD FOR WIRELESS VIDEO AND AUDIO TRANSMISSION UTILIZING A MINUTE-POWER LEVEL WAVE

REPLY TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

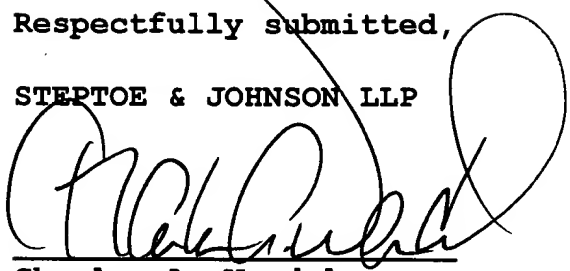
In reply to the paper mailed December 23, 2005, enclosed herewith is a revised Brief on Appeal with additional reference to the specification in the discussion of the invention. The Appendices are captioned as required, and the amended title of the invention appears on the front page.

There is no change in Section 3, which gives a complete history of the claims, including mention of a Request for Continued Examination filed July 19, 2004. The appeal was taken in this case not from a Final Rejection, but because the claims had been rejected at least twice.

Merits consideration of the arguments is earnestly solicited.

Respectfully submitted,

STEPTOE & JOHNSON LLP



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BRIEF ON APPEAL

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I. REAL PARTY IN INTEREST

The real party in interest is Matsushita Electric Industrial Co., Ltd. of Osaka, Japan, whose ownership interest is shown in an assignment filed January 21, 2000 in the USPTO. For reasons unknown, the assignment to date has not been recorded.

II. RELATED APPEALS AND INTERFERENCES

There is no other appeal or interference known to appellants, the assignee or the undersigned that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

The application as filed had 24 claims. On November 23, 1999, a Preliminary Amendment was filed to eliminate multiply dependent claims. (The application has a filing date of January 21, 2000, the date of filing of the executed Declaration for this national stage application.) Claims 1-24 were revised in an Amendment filed October 4, 2002. Claims 2-7, 9-14 and 16-24 were revised in an Amendment filed October 2, 2003. Claim 1 was revised in an Amendment Under 37 CFR §1.116 filed May 14, 2004. That Amendment,

although not entered initially (see Advisory Action mailed June 10, 2004), was entered due to an instruction given in a Request for Continued Examination filed July 19, 2004. No further changes to the claims have been made.

IV. STATUS OF AMENDMENTS

An appeal was taken directly from the Office Action mailed October 4, 2004. Thus, no amendment is awaiting or has been denied entry. The claims on appeal in the Appendix correspond to the claims that were rejected.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The invention set out in claims 1 and 13 is directed to a transmission apparatus and method for operating such apparatus using a master station for transmitting and receiving a signal having slave station address information and master station receiving frequency information; a relay station is located between the master station and a slave station.

The relay station is for:

(1) receiving a first signal (f1) from the master station, modulating the first signal to a different frequency (f2), and transmitting the modulated first signal to the slave station;

(2) receiving from the master station, return frequency information (f0) as part of a first minute-power signal, demodulating a portion of a second minute-power signal received from the slave station, modulating the demodulated portion at the master station return frequency (f0), and transmitting the modulated portion of the second minute-power signal to the master station, thereby establishing a return transmission path between the relay station and the master station; and

(3) transmitting information about a relay station receiving frequency at which the relay station receives a signal from the slave station.

The slave station is for:

(1) recognizing that a transmission signal is a signal directed to the slave station; and

(2) modulating and transmitting a response signal containing video or audio information at the relay station receiving frequency, thereby establishing a transmission path between the master station and the slave station.

See the specification at page 21, last paragraph, to page 24, line 9, describing the apparatus and page 25, second full paragraph, to page 29, line 12, describing the method for using the apparatus.

Fig. 1(a) shows master station 1, relay station 2, and slave station 3. Figs. 2(a) to 2(c) depict the interactions among the three stations during the method of use of the apparatus. This is the first embodiment of the invention; see page 21, line 12 of the specification. The various stations are discussed at page 22, line 9 to page 24, line 9. The operations of those stations are further discussed at page 25, line 7 to page 30, line 13.

Claims 2 and 14, depending from claims 1 and 13, respectively, call for the master station to include (1) a standard television signal in the forward path from the master station to the slave station; and (2) a PCM audio signal and the information indicating the address of the slave station and the reception frequency specified by the slave station superposed on a video signal during the vertical blanking period of the video signal. See the specification at page 23, line 24 to page 24, line 9.

Claim 3 and claim 15 are directed to a transmission apparatus and transmission method, respectively, including (1) a transmitter

having an RF converter, for generating a standard television transmission signal in a transmission mode, (2) a receiver having an RF tuner for receiving the standard television transmission signal in a reception mode, (3) frequency detection means for detecting available frequencies for video transmission, within the reception band of the RF tuner, in advance of use, (4) detected frequency registration means for registering the detected frequencies, as a communication frequency list, in both of the transmitter and the receiver; and (5) spread spectrum communication means for spreading the power spectrum by changing the frequency within the range of the communication frequency list, and performing spread spectrum communication. See the specification at page 30, fourth full paragraph, to page 46, line 2. The invention in these claims is designated the "second embodiment" in the specification. Fig. 4 shows an RF converter 102 that generates a standard television signal (page 31, third and fourth lines under table), an RF tuner 118 that receives a standard television transmission signal (page 32, lines 19 and 20), a frequency detection means 500 (Page 33, lines 16 to 2), a detected frequency registration means 501 (the paragraph bridging pages 33 and 34),

and a spread spectrum communication means 502 (page 34, lines 6 to 12).

Claims 4 and 16 are directed to a transmission apparatus in claims 3 and 15, respectively, further having transmission power control means for automatically changing the transmission power during the communication in accordance with the use frequency band width for keeping the power density per unit band width constant. See the specification at page 30, fourth full paragraph, to page 46, line 2. Fig. 4 shows transmission power control means 503.

Claims 5 and 17 are directed to a transmission apparatus of claims 3 and 15, respectively, further having frequency changing means for changing the frequency during the communication, in synchronization with the synchronous timing of the video signal. See the specification at page 30, fourth full paragraph, to page 46, line 2. Fig. 4 shows frequency changing means 504.

Claims 6 and 18 are directed to a transmission apparatus in claims 3 and 15, respectively, further having control signal superposition and transmission means for transmitting a control signal by superposing the control signal on the video signal in the blanking period, during the communication. See the specification at page 30, fourth full paragraph, to page 46, line 2. Fig. 4 shows

control signal superposition and transmission means 505; see the paragraph bridging pages 34 and 35.

Claims 7 and 19 are directed to a transmission apparatus of claims 3 and 15, respectively, further having audio signal superposition and transmission means for subjecting an audio signal to PCM, and for transmitting the PCM audio signal by superposing the PCM audio signal on the video signal in the blanking period, during the communication. See the specification at page 30, fourth full paragraph, to page 46, line 2. Fig. 4 shows audio signal and superposition and transmission means 506; see page 35, lines 7 to 15.

Claims 8 and 20 are directed to a transmission apparatus of claims 3 and 15, respectively, further having first and second transmission/reception apparatuses, each having a transmission apparatus described in Claim 3 (or related method steps of claim 15); frequency changing order control means for controlling the frequency changing order, during the communication, so that the frequency is changed in one direction, from a higher frequency to a lower frequency or from the lower frequency to the higher frequency, within a range of the communication frequency list, and when the frequency reaches an end of the frequency list, the

frequency is returned to the beginning of the frequency list; and communication control means for controlling the first and second transmission/reception apparatuses to realize duplex communication, by using a frequency time table in which the first and second transmission/reception apparatuses always use different frequencies. See the specification at page 46, line 3, to page 66, line 12. The invention of these claims is referred to in the specification as the "third embodiment"; see page 46, line 3 et seq. The first and second transmission (reception apparatuses are shown in Fig. 5 as elements 201A and 201B, respectively; see the first two lines of the paragraph bridging pages 47 and 48 and pages 49, lines 4 to 6. Fig. 5 also shows frequency changing order control means 510 (page 49, lines 7 to 16) and communication control means 511 (page 49, lines 17 to 23).

Claims 9 and 21 relate to a transmission apparatus of claims 8 and 20, respectively, further having communication frequency list update means that includes the previously registered communication frequency list when starting the communication, and is for using a second communication frequency list obtained by duplicating the registered communication frequency list after the communication has been started, and is for updating the second communication

frequency list by exchanging an indication of successful/unsuccessful communication between the first and second transmission/reception apparatuses. See the specification at page 46, line 3, to page 66, line 12. Fig. 5 shows communication frequency list update means 512; see the paragraph bridging pages 49 and 50.

Claims 10 and 22 depend from claims 3 and 15, respectively, and further include ID storage means for storing an identification number (hereinafter referred to as an ID) stored in the transmission apparatus during manufacture; and ID inquiry and registration means for performing mutual inquiry of IDs with another transmission apparatus, which is permitted to have communication in advance of use, and registering the ID. See the specification at page 66, line 12, to page 82, last paragraph. This is a "fourth embodiment" of the claimed invention; see page 66, line 13 et seq. of the specification. Fig. 5 shows ID storage means 520 (see the first full paragraph on page 67) and ID inquiry and registration means 520 (see the paragraph bridging pages 67 and 68).

Claims 11 and 23 depend from claims 10 and 22, respectively, and further include frequency setting means for always executing

the reception mode in advance of the transmission mode to detect frequency time tables of all other transmission apparatuses that are performing transmission within a same wave area, and for performing transmission by using a first frequency time table, a use frequency of which is always different from the frequencies of all the other transmission apparatuses; and retransmission means for performing retransmission by using a second frequency time table different from the first frequency time table when a transmission signal from another apparatus that has requested communication cannot be detected even when a predetermined period of time has passed after starting the transmission mode. See the specification at page 66, line 12, to page 82, last paragraph. Fig. 5 shows frequency setting means 522 (page 68, lines 2 to 11) and retransmission means 523.

Claims 12 and 24 call for a transmission apparatus as described in claims 3 and 15, respectively, further including output stop means for stopping output of original audio or video information, when the ID which is permitted to have communication cannot be confirmed in the reception mode. See the specification at page 66, line 12, to page 82, last paragraph. Fig. 5 shows output stop means 524; see the paragraph bridging pages 68 and 69.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection before the Board are:

(1) claims 1 and 13 stand rejected under 35 U.S.C. §102(b) as anticipated by Okubo U.S. Patent 5,689,355;

(2) claims 3-5, 8, 9, 12, 15-17, 20 and 21 stand rejected under 35 U.S.C. §102(b) as anticipated by Hylton U.S. Patent 5,793,413;

(3) claims 2 and 14 stand rejected under 35 U.S.C. §103(a) as obvious over Okubo '355 in view of Hattori et al. U.S. Patent 5,719,619;

(4) claims 6, 7 and 19 stand rejected under 35 U.S.C. §103(a) as obvious over Hylton '413 in view of Hattori '619;

(5) claims 10 and 22 stand rejected under 35 U.S.C. §103(a) as obvious over Hylton '413 in view of Yoshinobu U.S. Patent 5,684,526; and

(6) claims 11, 12, 23 and 24 stand rejected under 35 U.S.C. §103(a) as obvious over Hylton '413 in view of Yoshinobu '526 and Matsuda U.S. Patent 5,794,116.

VII. ARGUMENT

1. Claims 1 and 13 Are Patentable Over Okubo '355

A. Communication of Return Frequency Information Between a Master Station and a Relay Station

Okubo '355 does not teach the invention of claims 1 and 13. Appellants' claimed transmission apparatus includes a relay station for receiving return frequency information (f0) from a master station, i.e., the master station transmits information defining a return frequency (f0) to the relay station, so that in a future exchange between the relay station and the master station, i.e., when the relay station is relaying a transmission from a slave station to the master station, the exchange is carried out at the master-station-return-frequency (f0). In the apparatus and related method of claims 1 and 13, respectively, the indicated return frequency is not inherent to the master-station-relay-station linkage in any way, but instead, is established each time, and packaged as an "information f0" that is specifically transmitted to the relay station.

The Examiner at Section 12 ("Response To Arguments") on page 14 of the October 4, 2004 Rejection, has asserted that Okubo '355, Fig. 4 and column 1, lines 30-37, discloses:

> a master station 1 for transmitting and receiving a video or audio transmission signal audio by utilizing a first minute-power wave 5 (See figure 4, col 3 lines 61-67), the transmission signal comprising slave station 4 address information and master station 1 (base station) receiving frequency information indicating a frequency at which a master station 1 can receive a signal from a relay station 31 (master device/radio frequency stage) (see figure 4, col 1 lines 30-37).

This statement shows that the Examiner has erroneously read functionality into elements of the Okubo '355 device, which functionality is not disclosed therein. Okubo '355 says nothing about master station 1 "transmitting" a receiving frequency information indicating a frequency at which a master station 1 can receive a signal from a relay station 31. Such "receiving frequency information" would be data describing a receiving frequency, which would have to be packaged into signal form and transmitted from master station 1 to relay station 31. There is no mention in Okubo '355 of any such transmission function. Absent such disclosure, Okubo '355 does not disclose all elements of appellants' claims.

Further, the Examiner cites Okubo '355 at column 4, lines 54-61, as allegedly disclosing appellants' relay station for demodulating a portion of the signal received from the slave station, modulating such received signal at the master station return frequency (f0) (i.e., the "receiving frequency information" received from the master station), and transmitting such modulated signal. However, Okubo '355 teaches merely that the repeater/relay station is cabled to the master device; the reference says nothing about converting the signal received from the slave station into a new signal modulated at a master station return frequency that had been communicated from the master station to the relay station, and then transmitting such newly modulated signal. No such communication occurs in Okubo '355.

Nowhere does Okubo '355 disclose master station 1 transmitting information corresponding to appellants' information (f0). Okubo '355 does not describe or suggest any kind of "handshaking" (a term not appearing in appellants' disclosure, but used herein for purposes of explanation) communication, which each time conveys to the relay station a particular return-frequency (f0) to be used by the relay station when it does its job. Okubo '355 does not disclose or suggest appellants' "handshaking" step wherein a:

> relay station is for receiving from the master station, return frequency information (f0) as part of a first minute-power signal, demodulating a portion of a second minute-power signal received from the slave station, modulating the demodulated portion at the master station return frequency (f0), and transmitting the modulated portion of the second minute-power signal (relaying a message that originated from the slave station) to the master station, thereby establishing a return transmission path between the relay station and the master station

as recited in appellants' claims 1, and corresponding wording in claim 13.

The Advisory Action mailed June 10, 2004 (following a reply to a Final Rejection mailed February 17, 2004), at page 5, line 10, to page 6, line 4 from bottom, contains a statement that the Okubo '355 technique includes a relay station ("master device 3") between the master station ("base station 1") and slave station ("slave device 4"), which are located apart from each other, the Examiner stating:

> generating a transmission signal from the master station 1 (base station) comprising, in addition to original audio information, information indicating an address of the slave station 4 (col 4 lines 43-52), and information indicating a frequency at which the master station 1 receives a signal from the relay station 3 (see figure 4, col 4 lines 42-52)

Such a statement erroneously reads non-disclosed functionality into Okubo '355. Actually, Okubo '355, at least at Fig. 4, column 4, lines 43-52, discloses merely selecting a target station among a plurality of slave stations. Nowhere does Okubo '355 disclose or suggest that the radio wave transmitted from master station 1 to relay station 4 includes information designating the frequency that the relay station 4 should use when it re-transmits the signal originating from the slave station 1. Okubo '355 does not disclose (1) transmission by master station 1 of a message constituting such frequency information and then (2) subsequent use of that frequency information by relay station 4 to modulate the relayed slave station message for transmission to master station 1, as recited in appellants' claims.

The June 10, 2004 Advisory Action at page 9, line 1, to page 10, last line, contains an assertion that Okubo '355 discloses (i) a "handshaking" exchange between radio base station 1 and repeater 2 (which includes relay 3 in dotted line portion in Fig. 4), and (ii) master station 1 transmitting and receiving a video or audio transmission signal, which comprises slave station 4 address information and master station 1 (base station) receiving frequency information. While Fig. 4 might show slave station address

information because there are a plurality of slave stations 4, Okubo '355 does not additionally disclose or suggest master station 1 (base station) transmitting frequency information, i.e., there is no transmitted message or information packet indicating a specific frequency to be used by repeater 2 (which includes relay 3 in dotted line portion in Fig. 4), when it does its job.

The June 10, 2004 Advisory Action at page 10, line 1, to page 12, line 13, and particularly page 10, second paragraph, contains a statement that Okubo '355 discloses:

> a master station 1 for transmitting and receiving a video or audio transmission signal audio by utilizing a first minute-power wave 5 (see figure 4, col 3 lines 61-67), the transmission signal comprising slave station 4 address information and master station 1 (base station receiving frequency information indicating a frequency at which a master station 1 can receive a signal from a relay station 31 (master device/radio frequency stage) (see figure 4, col 1 lines 30-37;

This statement also shows that non-disclosed functionality has been read erroneously into Okubo '355. Actually, Okubo '355, at least at column 3, lines 61-67, describes repeater 2 (including relay station 3) as including:

> a master device which transduces an RF signal received via a down link from a radio base station into a light intensity-modulated signal, branches and outputs it from a plurality of output terminals and which transduces a plurality of light intensity-modulated signal of up links, received via a plurality of input terminals.

This description merely indicates that the master device portion of repeater 2 performs modulation of the received RF signal and of up-link signals, and outputs them. Okubo '355 says nothing about repeater 2 having the capability of receiving a message from master station 1 describing a return frequency to be used by repeater 2. Such information would be in the form of a frequency number that would be applied by repeater 2 to modulate a transmission received from a slave device. And, Okubo '355 does not disclose repeater 2 receiving such frequency information and then using it to modulate a transmission received from a slave station at that new frequency.

The Advisory Action, page 10 at second paragraph (skipping description of the slave station and relay station 31), continues with the statement:

> the relay station 3 modulates (col 7 line 42) the return signal receives (received) from the master station 1 and transmits the return signal 5 to the slave station 4 (see figure 4, col 7 lines 35-41), thereby establishing a return transmission path between the relay station 3 and the master station 1,

This statement does not correctly recite appellants' claim 1, because "transmits the return signal 5 to the slave station 4" should read "transmits the return signal 5 to the master station 1." Regardless, Okubo '355 does not disclose receiving frequency

information from master station 1 and then using that information to modulate a transmission received from a slave station at that new frequency.

In the October 4, 2004 Office Action (see page 21, last paragraph continuing to page 22), the Examiner purports further to justify the rejections based upon Okubo '355, stating that appellants are wrong in stating that Okubo '355 discloses nothing about an exchange of receiving frequency information between the master station 1 and relay station 3. The Examiner alleges that Okubo '355, column 1, lines 30-37, discloses modulating the signal received from master station 1 to a different frequency 31 (radio frequency stage), and outputting the different frequency. Actually, Okubo '355 Fig. 4 shows a block diagram of repeater 2 composed of radio frequency stage 31 and slave devices 4-n, where repeater 2 is in radio frequency communication with base station 1. Nothing is said about communicating a signal composed of return frequency information from base station 1 to repeater 2.

The Examiner further alleges in the above-mentioned portion of the Office Action that Okubo '355, column 7 ("70" understood to be a typographical error), lines 1-21, discloses modulating by relay station 3 the frequency of the minute power wave received from

master station 1 to a different frequency 31 (radio frequency stage) and outputting the different frequency. Such description refers merely to technical aspects of variable gain amplifiers and opto-electric transducers, which may modulate a received frequency to a new frequency. Such signal modulation operates on an as-received signal and has nothing to do with reception of an information signal transmitted by the base station 1, such signal conveying data describing a return frequency, as recited in appellants' claim 1.

B. Communication of Return Frequency Information Between a Relay Station and a Slave Station

The Office Action mailed October 10, 2004 contains at page 22, lines 1-2, a statement that Okubo '355 discloses "transmitting by the relay station 3 information about a frequency at which the relay station 3 receives 3 a signal from the slave station 4 (see figure 4, col 4 lines 54-60)." This statement shows that the Examiner has erroneously read functionality into elements of the Okubo '355 device, which functionality is not disclosed therein.

First, Okubo '355, Fig. 4, does not disclose or suggest anything about stage 31, alleged to correspond to appellants' relay station, for transmitting "information" about a stage 31 receiving frequency at which stage 31 receives a signal from the slave device 4, alleged to correspond to appellants' slave station. There is no description in Okubo '355 describing or implying such "handshaking" structure for transmitting such receiving frequency information, as recited in appellants' claims. Second, Okubo '355, col. 4, lines 41-58 (encompassing the above-cited passage) merely describes an opto-electric arrangement between a master device and a radio base station, which does not include any disclosure about a device acting as a relay that transmits "information" about a relay device receiving frequency at which such device receives a signal from a slave station, as recited in claim 1. Okubo '355 does not disclose a circuit corresponding to a repeater acting as a relay for "transmitting information about a frequency at which the relay station 3 receives 3 a signal from the slave station 4," as asserted by the Examiner.

2. Claims 3-5, 8, 9, 12, 15-17, 20 and 21 Are Patentable Over Hylton U.S. Patent 5,793,413

One of ordinary skill in the art is not directed to the claimed invention from a consideration of Hylton '413 alone or following a collective consideration of all the cited references. The cited prior art does not teach or suggest appellants' claimed transmission apparatus including frequency detection means for detecting available frequencies for video transmission, within the reception band of the RF tuner, in advance of use, detected frequency registration means, and spread spectrum communication means performing spread spectrum communication, as recited in apparatus claim 3 and corresponding method claim 15.

Claims 4 and 16 call for the apparatus of claim 3 or related method of claim 15, respectively, together with means for automatically changing the transmission power during the communication in accordance with the use frequency band width for keeping the power density per unit band width constant. Claims 5 and 17 call for the apparatus of claim 3 or related method of claim 15, respectively, together with frequency changing means for changing the frequency during the communication, in synchronization with the synchronous timing of the video signal. Claims 6 and 18

call for the apparatus of claim 3 or method of claim 15, respectively, together with control signal superposition and transmission means for transmitting a control signal by superposing the control signal on the video signal in the blanking period, during the communication. Claims 8 and 20 call for the first and second apparatus of claim 3, together with frequency changing order control means for controlling the frequency changing order during the communication, so that the frequency is changed in one direction, from a higher frequency to a lower frequency or from the lower frequency to the higher frequency, within a range of the communication frequency list, and when the frequency reaches an end of the frequency list, the frequency is returned to the beginning of the frequency list; and communication control means for controlling the first and second transmission/reception apparatuses to realize duplex communication, by using a frequency time table in which the first and second transmission/reception apparatuses always use different frequencies. Claims 9 and 21 call for the apparatus of claim 8, together with communication frequency list update means that comprises the previously registered communication frequency list when starting the communication, and is for using a second communication frequency list obtained by duplicating the

registered communication frequency list after the communication has been started, and is for updating the second communication frequency list by exchanging an indication of successful/unsuccessful communication between the first and second transmission/reception apparatuses. Claim 12 calls for the apparatus of claim 10, further having output stop means for stopping output of original audio or video information, when the ID which is permitted to have communication cannot be confirmed in the reception mode. Such features are not taught or suggested by the cited art.

The Examiner has asserted that Hylton '413 discloses the spread spectrum function recited in appellants' claims 3, 5, 8, 9, 15-17, 20 and 21. Hylton '413 merely discloses that a tuner implements use of the spread spectrum, i.e., spread spectrum communication using Code Division Multiple Access ("CDMA"), which is <u>not</u> the same as appellants' frequency detection means for detecting available frequencies for video transmission, within the reception band of the RF tuner, in advance of use. In fact, Hylton '413 at column 29, line 14-16, contains a statement that "the output of the tuner 512 is fed to a frequency hopping CDMA spread spectrum transmitter 516." Thus, Hylton '413 discloses mere

frequency hopping and not detection of available frequencies. Moreover, the reference discloses frequency hopping after generation of output to be transmitted (i.e., feeding output of tuner 512 into the CDMA transmitter 516), and not in advance of use, i.e., before such feeding of output.

Hylton '413, at column 30, lines 4-29, is said to disclose appellants' means for automatically changing transmission power during communication in accordance with the use frequency band width for keeping the power density per unit band width constant (claim 4). However, the spread spectrum function described by Hylton '413 varies a carrier frequency iteratively according to a predetermined sequence, or modulates a carrier frequency using pseudo noise, and is not the same as appellants' function of automatically changing the transmission power during the communication in accordance with the use frequency band width to keep the power density per unit bandwidth constant.

3. Claims 2 and 14 Are Patentable Over Okubo '355 and Hattori '619

Appellants' claimed transmission apparatus and related method of claims 2 and 14, depending from claims 1 and 15, respectively,

additionally call for transmitting a transmission signal including a standard television signal in the forward path from the master station to the slave station, and a PCM audio signal and the information indicating the address of the slave station and the reception frequency specified by the slave station, superposed on a video signal during the vertical blanking period of the video signal. Such features are not taught or suggested by the cited art.

The Examiner admits that Okubo '355 does not disclose appellants' transmission apparatus and method including transmitting a control signal by superposing it on the video signal in the blanking period during communication; Hattori '619 is said to teach same.

However, while Hattori '619, column 28, lines 40-49 teaches a method of transmitting a "program related information" control signal by superposing it on the video signal in the vertical blanking period, Hattori '619, column 28, lines 50-59, describes such "program related information" control signal as various kinds of signals including question data, evaluation data, selection data or PCM audio data, any of which is superposed on the video signal in the vertical blanking period. But, Hattori '619 does not disclose or suggest a method of superposing a signal indicating the

frequency of a transmission signal on the transmission signal. This signal information is completely different than any type of signal to be superposed discussed in Hattori '619.

The Examiner alleges also that Okubo '355 discloses apparatus or a method for using such apparatus for superposing a signal indicating the frequency of the transmission signal on the transmission signal, as recited in claims 2 and 14. While Okubo '355 discloses a method of automatically performing compensation for attenuation of signals that are transmitted through optical cables interconnecting a master device and a plurality of slave devices all located in a repeater for a radio paging system, Okubo '355 does not disclose or suggest appellants' apparatus and method for using such apparatus.

4. Claims 6, 7 and 19 Are Patentable Over Hylton '413 and Hattori '619

Claims 6, 7 and 19 call for the apparatus of claim 10 or method of claim 15, respectively, together with audio signal superposition and transmission means for subjecting an audio signal to PCM, and for transmitting the PCM audio signal by superposing the PCM audio signal on the video signal in the blanking period, during the communication.

It is admitted in the Office Action that Hylton '513 does not disclose a transmission apparatus as recited in claim 3 and corresponding claim 15, further including audio signal superposition and transmission means for subjecting an audio signal to PCM, and for transmitting the PCM audio signal by superposing the PCM audio signal on the video in the blanking period, during the communication, as recited in claim 6 and corresponding method claim 19; Hattori '619 is asserted to teach same. Although Hylton '513 discloses transmitting a video signal by use of frequency hopping CDMA, Hattori '619 does not teach or suggest a method of superposing a signal that indicates the frequency of a transmission signal on the transmission signal. Accordingly, neither Hylton '413 nor Hattori '619 disclose or teach the apparatus of claim 3

from which claims 6 and 7 depend or the method of claim 15 from which claim 19 depends.

5. Claims 10 and 22 Are Patentable Over Hylton '413 and Yoshinobu '526

Claims 10 and 22 call for the apparatus of claim 3 or method of claim 15, respectively, together with ID storage means for storing an identification number (hereinafter referred to as an ID) stored in the transmission apparatus during manufacture; and ID inquiry and registration means for performing mutual inquiry of IDs with another transmission apparatus, which is permitted to have communication in advance of use, and registering the ID.

It is admitted in the Office Action that Hylton '413 does not disclose the transmission apparatus of claims 10 and 22; Yoshinobu '526 is asserted to teach same. This reference teaches a system and method in which a two-way broadcast program, such as a TV shopping or quiz program, requires a response information transmitting apparatus for transmitting a response information including ID information and apparatus ID. However, contrary to the position advanced in the Office Action, the Yoshinobu '526 transmission apparatus does not implement the ID inquiry and ID

registration with another transmission apparatus that is permitted to have communication in advance of use. Furthermore, the system and method of Yoshinobu '526 is not a transmission apparatus, but instead is a television receiver, which cannot transmit signals. Accordingly, neither Hylton '413 nor Yoshinobu '526 disclose or teach the apparatus of claim 3 from which claim 10 depends or the method of claim 15 from which claim 22 depends.

6. Claims 11, 12, 23 and Are Patentable Over Hylton '413, Yoshinobu '526 and Matsuda U.S. Patent 5,794,116

Claims 11, 12 call for the apparatus of claim 3 and claims 23 and 24 call for the method of claim 15, together with frequency setting means for always executing the reception mode in advance of the transmission mode to detect frequency time tables of all other transmission apparatuses that are performing transmission within a same wave area, and for performing transmission by using a first frequency time table a use frequency of which is always different from the frequencies of the all other transmission apparatuses; and retransmission means for performing retransmission by using a second frequency time table different from the first frequency time table when a transmission signal from another apparatus that has

requested communication cannot be detected even when a predetermined period of time has passed after starting the transmission mode.

It is admitted in the Office Action that Hylton '413 and Yoshinobu '526 do not disclose the retransmission means of claim 12 for performing retransmission by using a frequency time table different from the frequency time table when a transmission signal from another apparatus that has requested communication cannot be detected, even when a predetermined period of time has passed after starting the transmission mode, and communication signal from another terminal cannot be detected when a predetermined period has passed; Matsuda '116 is asserted to teach same. This reference teaches that the base station for control data receives instruction for transmission of video data and a control signal packet, and confirms whether or not there is a video data request and a free channel; if the channel is available, the base station for control data transfers the received control signal packet to the video server, and if the channel is unavailable, the base station for control data transmits a control signal including a request for resetting the channel to the wireless video terminal. The wireless

video terminal then newly designates another channel in order to acquire the video data.

In contrast, appellants' condition for requesting retransmission recited in claim 12 differs from that of Matsuda '116 because appellants' retransmission is requested when a transmission signal from another apparatus that has requested communication cannot be detected even when a predetermined period of time has passed after starting the transmission mode.

Furthermore, Matsuda '116 does not overcome the deficiencies of Hylton '413 and Yoshinobu '526, which, as described above, do not disclose or suggest ID inquiry and registration means for performing mutual inquiry of ID's with another transmission apparatus that is permitted to communicate in advance of use and registering the ID, as recited in claim 10, from which claim 12 depends. Accordingly, none of Hylton '413, Yoshinobu '526 or Matsuda '116 disclose or teach the apparatus of claim 3 from which claims 11 and 12 depend or the method of claim 15 from which claims 23 and 24 depend.

VIII. CONCLUSION

For the foregoing reasons, it is respectfully submitted that claims 1-24 patentably define over the cited references and the Board is requested to so rule.

Respectfully submitted,

STEPTOE & JOHNSON, LLP

Date: January 23, 2006

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Attachments: Claims Appendix
Evidence Appendix

Attorney Docket No.: 28951.1093

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CLAIMS APPENDIX

1. A transmission apparatus comprising:

a master station for transmitting and receiving a video or audio transmission signal by utilizing a first minute-power wave, said transmission signal comprising slave station address information and master station receiving frequency information indicating a frequency at which a master station can receive a signal from a relay station;

a slave station for transmitting and receiving a video or audio transmission signal utilizing a second minute-power wave; and

a relay station located between the master station and the slave station, said master and slave stations located apart from each other by a distance longer than the reachable range of a first minute-power wave, wherein

said relay station is for receiving a first minute-power signal (f1) from the master station, modulating it to a different frequency (f2), and transmitting the modulated first minute-power signal to the slave station;

said relay station is for receiving from the master station, return frequency information (f0) as part of a first minute-power signal, demodulating a portion of a second minute-

power signal received from the slave station, modulating the demodulated portion at the master station return frequency (f0), and transmitting the modulated portion of the second minute-power signal to the master station, thereby establishing a return transmission path between the relay station and the master station;

said relay station is for transmitting information about a relay station receiving frequency at which the relay station receives a signal from the slave station;

said slave station is for recognizing that a transmission signal is a signal directed to said slave station; and

said slave station is for modulating and transmitting a response signal comprising video or audio information at said relay station receiving frequency, thereby establishing a transmission path between the master station and the slave station.

2. The transmission apparatus as described in Claim 1, wherein:

said master station is for transmitting a transmission signal comprising:

a standard television signal in the forward path from the master station to the slave station; and

a PCM audio signal and the information indicating the address of the slave station and the reception frequency specified by the slave station superposed on a video signal during the vertical blanking period of the video signal.

3. A transmission apparatus comprising:

a transmitter having an RF converter, for generating a standard television transmission signal in a transmission mode;

a receiver having an RF tuner for receiving the standard television transmission signal in a reception mode;

frequency detection means for detecting available frequencies for video transmission, within the reception band of the RF tuner, in advance of use;

detected frequency registration means for registering the detected frequencies, as a communication frequency list, in both of the transmitter and the receiver; and

spread spectrum communication means for spreading the power spectrum by changing the frequency within the range of the communication frequency list, and performing spread spectrum communication.

4. The transmission apparatus as described in Claim 3, further comprising transmission power control means for automatically changing the transmission power during the communication in accordance with the use frequency band width for keeping the power density per unit band width constant.

5. The transmission apparatus as described in Claim 3, further comprising frequency changing means for changing the frequency during the communication, in synchronization with the synchronous timing of the video signal.

6. The transmission apparatus as described in Claim 3, further comprising control signal superposition and transmission means for transmitting a control signal by superposing said control signal on the video signal in the blanking period, during the communication.

7. The transmission apparatus as described in Claim 3, further comprising audio signal superposition and transmission means for subjecting an audio signal to PCM, and for transmitting the PCM audio signal by superposing said PCM audio signal on the video signal in the blanking period, during the communication.

8. A transmission apparatus comprising:

first and second transmission/reception apparatuses each comprising a transmission apparatus described in Claim 3;

frequency changing order control means for controlling the frequency changing order, during the communication, so that the frequency is changed in one direction, from a higher frequency to a lower frequency or from the lower frequency to the higher frequency, within a range of the communication frequency list, and when the frequency reaches an end of the frequency list, the frequency is returned to the beginning of the frequency list; and

communication control means for controlling the first and second transmission/reception apparatuses to realize duplex communication, by using a frequency time table in which the first and second transmission/reception apparatuses always use different frequencies.

9. The transmission apparatus as described in Claim 8, further comprising communication frequency list update means which comprises the previously registered communication frequency list when starting the communication, and is for using a second communication frequency list obtained by duplicating

the registered communication frequency list after the communication has been started, and is for updating the second communication frequency list by exchanging an indication of successful/unsuccessful communication between the first and second transmission/reception apparatuses.

10. The transmission apparatus as described in Claim 3, further comprising:

ID storage means for storing an identification number (hereinafter referred to as an ID) stored in the transmission apparatus during manufacture; and

ID inquiry and registration means for performing mutual inquiry of IDs with another transmission apparatus, which is permitted to have communication in advance of use, and registering the ID.

11. The transmission apparatus as described in Claim 10, further comprising:

frequency setting means for always executing the reception mode in advance of the transmission mode to detect frequency time tables of all other transmission apparatuses which are performing transmission within a same wave area, and for performing transmission by using a first frequency time table a

use frequency of which is always different from the frequencies of said all other transmission apparatuses; and

retransmission means for performing retransmission by using a second frequency time table different from said first frequency time table when a transmission signal from another apparatus which has requested communication cannot be detected even when a predetermined period of time has passed after starting the transmission mode.

12. The transmission apparatus as described in Claim 10, further comprising output stop means for stopping output of original audio or video information, when the ID which is permitted to have communication cannot be confirmed in the reception mode.

13. A transmission method for mutually transmitting video and audio transmission signals between a master station and a slave station by utilizing a minute-power wave, comprising:

locating a relay station between the master station and the slave station which are located apart from each other by a distance longer than the reachable range of the minute-power wave;

generating a transmission signal from the master station comprising, in addition to original audio or video information, information indicating an address of the slave station, and information indicating a frequency at which the master station receives a signal from the relay station;

modulating by said relay station the frequency of the minute-power wave received from the master station to a different frequency and outputting said different frequency;

transmitting by said relay station information about a frequency at which the relay station receives a signal from the slave station; and

modulating by the slave station the minute-power wave to the frequency specified by the relay station and transmitting the video or audio, thereby establishing a transmission path between the master station and the slave station, when the slave station recognizes that the transmission signal is a signal directed to the slave station.

14. The transmission method as described in Claim 13, further comprising:

using a standard television signal as the transmission signal in the forward path from the master station to the slave station; and

superposing a PCM audio signal and the information indicating the destination station and the reception frequency specified by the slave station on a video signal during the vertical blanking period of the video signal.

15. A transmission method for performing transmission between a transmitter having an RF converter that generates a standard television transmission signal in a transmission mode, and a receiver having an RF tuner that receives the standard television signal in a reception mode, comprising:

detecting, in advance of use, frequencies for video transmission within a reception band of the RF tuner;

registering the detected frequencies, as a communication frequency list, in both of the transmitter and the receiver; and

spreading the power spectrum by changing the frequency within the range of the communication frequency list, thereby performing spread spectrum communication.

16. The transmission method as described in Claim 15, further comprising automatically changing the transmission power during the communication in accordance with the use frequency band width so as to keep the power density per unit band width constant.

17. The transmission method as described in Claim 15, comprising changing the frequency during the communication in synchronization with the synchronous timing of the video signal.

18. The transmission method as described in Claim 15, transmitting a control signal during the communication by superposing the control signal on the video signal in the blanking period.

19. The transmission method as described in Claim 15, further comprising, during the communication, subjecting an audio signal to PCM, and transmitting the PCM audio signal by superposing the PCM audio signal on the video signal in the blanking period.

20. A transmission method, comprising:

performing by each of first and second transmission/reception apparatuses the transmission method described in Claim 15;

controlling a frequency changing order during the communication so that the frequency is changed in one direction, from a higher frequency to a lower frequency or from the lower

frequency to the higher frequency, within a range of the communication frequency list, and when the frequency reaches an end of the frequency list, the frequency is returned to the beginning of the frequency list; and

controlling the first and second transmission/reception apparatuses to realize duplex communication, by using a frequency time table in which the first and second transmission/reception apparatuses always use different frequencies.

21. The transmission method as described in Claim 20, further comprising:

using the previously registered communication frequency list when starting the communication and, after the communication has been started, using a second communication frequency list obtained by duplicating the previously registered communication frequency list, and

updating the second communication frequency list by exchanging a signal indicating successful/unsuccessful communication between the first and second transmission/reception apparatuses.

22. The transmission method as described in Claim 15, comprising:

storing an identification number (hereinafter referred to as an ID) in the transmission apparatus during manufacture; and

in advance of use, performing mutual inquiry of IDs with another transmission apparatus which is permitted to have communication, and registering the ID.

23. The transmission method as described in Claim 22, comprising:

always performing the reception mode in advance of the transmission mode to detect frequency time tables of all other transmission apparatuses which are performing transmission within a same wave area, and performing transmission by using a frequency time table a use frequency of which is always different from those of these other transmission apparatuses; and

performing retransmission by using a frequency time table different from said frequency time table when a transmission signal from another apparatus that has requested communication cannot be detected even when a predetermined period of time has passed after starting the transmission mode.

24. The transmission method as described in Claim 22, comprising:

not outputting the original audio or video information when the ID which is permitted to have communication cannot be confirmed in the reception mode.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None